Ice Lanterns

Make a winter weather lantern and learn about states of matter.

Kit contains:

- 1 big cup
- 1 small cup
- 1 small LED light
- 1 pipe cleaner (chenille stem)
- beads
- color tablet

You will need: nature items (leaves, twigs, etc.), small weights such as rocks or coins, tape, and scissors (optional).

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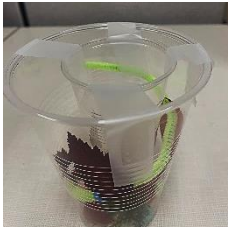
INSTRUCTIONS

It is best to do this project when it will be below freezing outside for a while

(1) Collect items from nature that you'd like to have in your ice lantern.

(2) Arrange the nature items, pipe cleaner, and beads in the big cup. Suggestion: spiral the pipe cleaner around the edge of the cup and put things on it.



(3) Hold the small cup in the middle of the big cup so the tops are even. Tape it into place (four pieces of tape works well).

(4) Fill only the big cup with water. Don't fill it all the way; stop about 1 inch below the top. As you're filling the big cup, add small weights (rocks, coins, etc.) to the little cup as it floats up so the tops stay about even. It's ok if some of the decorations float.

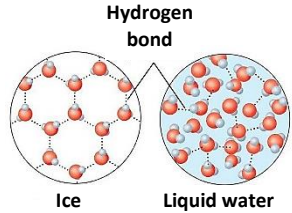
(5) If you want color, add the color tab to the water.

(6) If it's below freezing outside (32°F) and will be that way for a few hours, you can put your lantern outside to freeze. If not, put it in the freezer.

(7) When your lantern is completely frozen, remove the small cup, and then remove the bigger cup. You may need to cut them to do this.

(8) Turn on the small LED light by pulling out the tab. You can either put it in your lantern or turn your lantern over it. Your lantern can glow as an outside decoration as long as the temperature stays below 32°F.

WHAT'S GOING ON?



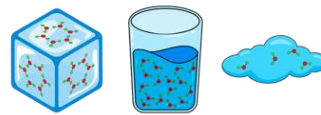
Why didn't you fill your cup to the top? When water freezes, the molecules form hexagon-shaped crystals, leaving air in the middle, which makes it expand and take up more space.

STATES OF MATTER

When you freeze water, you're seeing examples of two different **states of matter**. There are three most basic states of matter – solid, liquid, and gas. Water is a type of matter where we can easily see all three:

- The liquid state is water.
- The solid state is ice and happens when water is cooled below its freezing point, 32°F.
- The gas state is steam and happens when water is heated up past its boiling point, 212°F.

When you made your ice lantern, you started out with liquid water, put it in a temperature below freezing (32°F), and the liquid water changed to solid water (ice). When the solid water (ice) warms up above 32°F, it will melt and turn back into liquid water.



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